AMENDED SPECIFICATION

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DRAWINGS ATTACHED

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(19)

(54) IMPROVEMENTS IN WRITING OR MARKING INSTRUMENTS

(71) I, JOHN PHILIP CLADINGBOEL, a British subject of 42, Manor Way, Bush Hill Park, Enfield, Middlesex, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to fibre tipped writing or marking instruments of the kind having an ink cartridge or reservoir in a barrel.

Nib cores used in fibre tipped writing or marking instruments have to be fitted into a nose portion of the barrel of the instrument with a predetermined length of the nib core projecting therefrom, and means have to be provided for retaining the nib core in said predetermined position in such a manner that it cannot be forced into the nose portion under writing or marking pressure and cannot slide or drop out of the nose portion accidentally. In order to achieve this, several proposals have already been made. According to one known method the nib core is fitted with an interference fit into a specially designed shroud mounted in the nose portion of the instrument. This method, whilst being perfectly effective does have certain disadvantages in manufacture; for example, the smallest deviation in tolerances between the nib core diameter and the shroud bore diameter will result in defective assembly, that is the nib core will push into the shroud under writing or marking pressure or, due to angular movement between the nib core and the shroud under writing or marking pressure the shroud will tend to split. In order to prevent the nib core from being forced back into the nose portion of the instrument under writing or marking pressure it has been proposed to provide a specially designed shroud having a bridge type stop against which the inner end of the nib core abuts but this complicates manufacture, and consequently increases cost, and also reduces the capillary area of the nib core in contact with the ink reservoir.

According to other known arrangements, the nib core is adhesively fixed in the desired position in a specially designed shroud or is fixed in position by cross pinning, but both of these arrangements have disadvantages; the former requires special care to ensure that the correct length of the tip core projects from the nose portion of the instrument during assembly and the latter increases cost and requires special pinning tools.

The object of the present invention is to provide an improved fibre tipped instrument of the kind referred to which is free from the above stated disadvantages and which has a nib core fitted into the nose portion of the instrument quickly, easily and accurately by unskilled operatives, whilst automatically assuming a position in which the required predetermined length of the nib core projects from the nose portion of the instrument.

This invention provides a writing or marking instrument comprising a barrel having an ink cartridge or reservoir, and a nib core of bonded man-made fibres having a front end which projects from a nose portion of the barrel of the instrument and a pointed rear end which penetrates the ink cartridge or reservoir, the nib core being fitted in the nose portion with a force fit and with a shoulder or step plunge form ground on the nib core intermediate its ends forming a stop limiting the extent to which the nib core is inserted into the nose portion.

In order that the invention may be more

clearly understood, two particular embodiments thereof will now be described, by way of example, with reference to the accompanying drawings, in which:—

Figure 1 is an axial section through the forward end of a writing or marking instrument according to the invention; and

Figure 2 is a similar view showing another writing or marking instrument according to the invention.

Referring to Figure 1 of these drawings, a nib core 3 manufactured from man-made fibres bonded together with epoxy resin or any other suitable bonding agent is provided intermediate its ends with a step or shoulder 4 thereby forming a front nib portion 5, which forms the writing or marking point of the instrument, of larger diameter than the rear portion, the diameter of the rear portion being such as to fit into the bore in the nose portion of an instrument barrel 6 with a force fit, that is, with sufficient friction to prevent it from accidentally dropping out of said bore when held in the writing or marking position. As will be understood, the step or shoulder 4 forms a stop for limiting the extent the nib core can be inserted into the instrument barrel 6.

The position of the step or shoulder 4 of the nib core along the length thereof is determined in dependence upon the length of the nib portion 5 required, and the total length of the nib core is chosen such that when in position its smaller diameter rear portion will project a suitable distance into an ink reservoir or cartridge 7 housed in the barrel 6. The rear or inner end 8 of the nib core is of pointed shape as shown so as to facilitate insertion thereof into the bore in the nose portion of the barrel and to facilitate penetration into said ink reservoir or cartridge.

In a further embodiment of the invention shown in Figure 2, the nib core 3 is provided intermediate its ends with a radial flange 9, said radial flange forming a step or shoulder 9*a* which provides the stop for limiting the extent the nib core can be inserted into the barrel 6. The nib core is otherwise similar to that shown in Figure 1.

The step or shoulder 4 of Figure 1 and the flange portion 9 of Figure 2 are produced by the plunge form grinding technique easily and economically.

WHAT I CLAIM IS:—

1. A writing or marking instrument comprising a barrel having an ink cartridge or reservoir, and a nib core of bonded man-made fibres having a front end which projects from a nose portion of the barrel of the instrument and a pointed rear end which penetrates the ink cartridge or reservoir, the nib core being fitted in the nose portion with a force fit and with a shoulder or step plunge form ground on the nib core intermediate its ends forming a stop limiting the extent to which the nib core is inserted into the nose portion.

2. An instrument according to claim 1, wherein said step or shoulder is formed by providing said nib core with a front portion, forming the writing or marking point of the instrument, of larger diameter than the rear portion, and said rear portion has a diameter such that said rear portion is fitted with said force fit in said nose portion.

3. An instrument according to claim 1, wherein said step or shoulder is formed by providing the nib core with a radial flange intermediate its ends, and the rear end of said nib core has a diameter such that said rear end is fitted with said force fit in said nose portion.

4. A writing or marking instrument substantially as herein described with reference to Figure 1 or Figure 2 of the accompanying drawings.

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1 SHEET

AMENDED SPECIFICATION

This drawing is a reproduction of the Original on a reduced scale

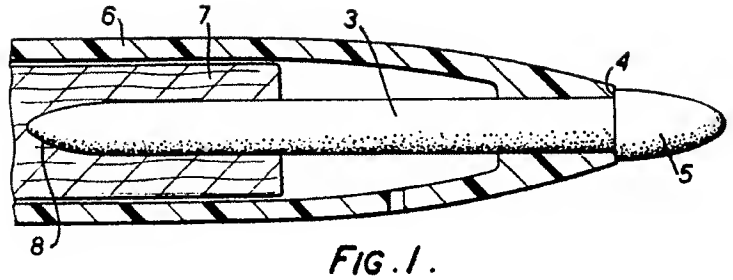

FIG. 1.

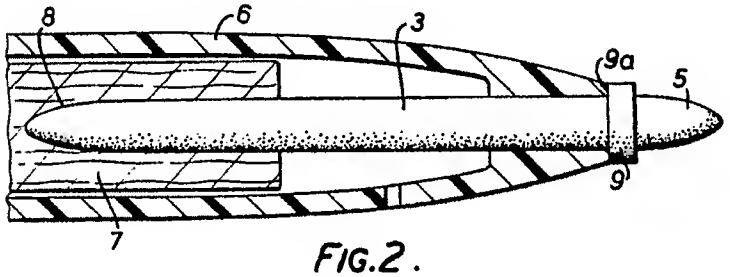

FIG. 2.